A New Species of *Amyris* (Rutaceae) from Baja California Sur, Mexico

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ABSTRACT. Field exploration and floristic research have revealed another plant species endemic to the peninsula of Baja California, Mexico. A new shrubby species (*Amyris carterae*) from the Sierra Guadalupe and Sierra de la Giganta, Baja California Sur, is described here. Distribution, associated vegetation, rarity, affinity to another species in the genus, and a botanical illustration are presented.

RESUMEN. Trabajo de campo e investigación florística han puesto de manifiesto una especie de planta endémica de la península de Baja California, México. Un arbusto (*Amyris carterae*) de la Sierra Guadalupe y Sierra de la Giganta, del estado de Baja California Sur se describe aquí como especie nueva para la ciencia. Se presentan la distribución, vegetación asociada, rareza, afinidad con otra especie en el género, así como una ilustración del nuevo taxon.

Key words: *Amyris*, Baja California Sur, Mexico, Rutaceae.

Lower California is comprised of two Mexican states (Baja California and Baja California Sur) that are politically divided at the 28th parallel. These states compose the Baja California peninsula and its adjacent islands, which are located in both the Gulf of California (Sea of Cortés) and the Pacific Ocean. This region supports a wealth of species. Wiggins (1980) estimated that a total of 2958 taxa, of which 686 are endemic, occur in Lower California, but recent discoveries and a more extensive overview of the literature suggests that the flora probably consists of more than 4000 plant taxa with a rate of endemism around 30% (Rebman, 2001).

The Rutaceae are represented in Lower California by eight native species in six genera (*Amyris* P. Browne, *Cneoridium* Hooker f., *Esenbeckia* HBK, *Ptelea* L., *Thamnosma* Torrey & Frémont, and *Zanthoxylum* L.). At least four of these species (the new species *Amyris carterae*, as well as *Thamnosma trifoliata* I. M. Johnston, *Zanthoxylum arborescens* Rose, and *Z. fagara* (L.) Sargent) are rare or restricted in their distribution on the peninsula. The genus *Amyris* has approximately 40 species distributed from Florida, Texas, and the Antilles, south to Venezuela and Peru (Gereau, 1991). At present, only this species of *Amyris* is known to occur on the peninsula of Baja California; the member of the genus with the closest geographical proximity is *A. balsamifera* L. in southern Sonora and Sinaloa in Mexico. A collection (*M. Domínguez 235*, SD) made in the Sierra de la Laguna of the Cape Region may represent another species of this genus, but more research and better collections are needed to substantiate this occurrence. The new shrubby species described here adds to the impressive diversity and endemism of the flora of Lower California.

Amyris carterae J. Rebman & F. Chiang, sp. nov. TYPE: Mexico. Baja California Sur: Sierra Guadalupe, W of Mulegé, Guadalupe Canyon ca. 14 mi. SW of San José de Magdalena, 500 m, 26°56′54″N, 112°22′15″W, 25 Sep. 1998, *J. P. Rebman 5634 & J. L. Zuniga* (holotype, SD 142880; isotypes, BCMEX, HCIB, MEXU, MO, RSA). Figure 1.

A. madrensi similis, sed differt foliolis supra non nitidis, venis lateralibus non prominente elevatis, inflorescentia constanter pubescenti, et crescit in solo volcanico.

Rounded to spreading shrub, to 7 m tall, most branches ascending to erect, the stems densely pubescent with spreading hairs, canescent especially on newer growth. Leaves opposite to subopposite, 4-ranked, odd-pinnately compound; petioles gray, tomentose, 5–11 mm long; lateral petiolules 1–3 mm long, the terminal one 2–5 mm long; leaflets 3 to 9, 7–21 mm long, 5–20 mm wide, the leaflet

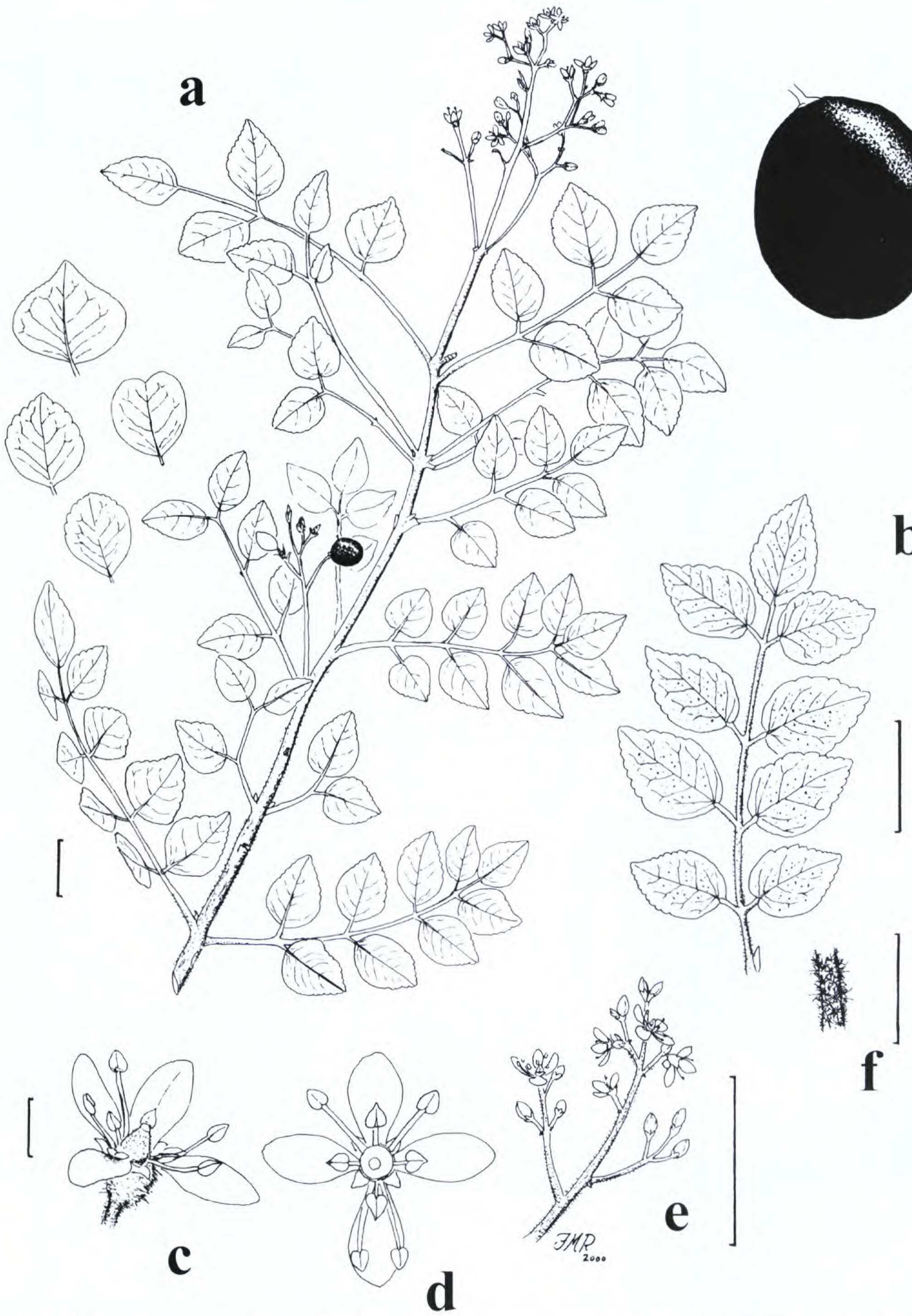

Figure 1. *Amyris carterae* J. Rebman & F. Chiang. —a. Stem segment with leaves, inflorescence, and variable leaflets, scale bar = 1 cm. —b. Leaf, bar = 1 cm. —c, d. Flower, bar = 1 mm. —e. Part of paniculate inflorescence, bar = 1 cm. —f. Pubescence on petiole and rachis, bar = 2 mm. —g. Mature fruit, bar = 1 mm. Drawn from the type material (*Rebman 5634*) except for the fruit (g), which was drawn from *Rebman 6038*.

shape variable, mostly ovate, but also broadly elliptic or orbicular, the margin crenate or rarely entire, the apex acute to obtuse, rarely emarginate, the base cuneate to rounded, sometimes slightly cordate; upper leaflet surface dark green, densely brown punctate, puberulent but glabrescent with age, the lower surface gray to light green, sparsely punctate, densely pubescent and velvety. Inflorescence a terminal or axillary panicle, densely pubescent and velvety. Flowers small, perfect; calyx light green, densely pubescent, with 4 triangular lobes to 1 mm long; petals 4, free, white, obovate, 2–3 mm long, with a central patch of oil-gland dots and simple hairs on the abaxial surface of each petal; stamens 8, of which 4 are shorter in length and alternate with longer ones, separate; anthers with longitudinal dehiscence. Fruit a 1-seeded drupe, ellipsoid to ovoid, black at maturity, 9–13 × 8–11 mm, puberulent with simple, spreading hairs.

Phenology. Flowering September to November.

Distribution and habitat. Endemic to the state of Baja California Sur; elevations 390–1000 m; occurring in canyon bottoms and lower slopes on volcanic substrates usually associated with vegetation dominated by *Lysiloma divaricatum* Bentham, *Ficus palmeri* S. Watson, *Celtis reticulata* Torrey, *Sebastiania bilocularis* S. Watson, *Stenocereus thurberi* (Engelmann) Buxbaum, and *Fouquieria diguetii* (Tieghem) I. M. Johnston. Other plant species present in the canyon community with *Amyris carterae* include: *Acacia kelloggiana* A. M. Carter & Rudd, *Acalypha subviscida* S. Watson, *Bursera laxiflora* S. Watson, *Carlowrightia pectinata* Brandegee, *Carminatia tenuiflora* DC., *Croton sonorae* Torrey, *Dicraurus alternifolius* (S. Watson) Uline & Bray, *Eupatorium peninsulare* Brandegee, *Ferocactus peninsulae* (Engelmann ex Weber) Britton & Rose var. *peninsulae*, *Galium moranii* Dempster subsp. *aculeolatum* Dempster, *Hedyotis brevipes* (Rose) W. H. Lewis, *Jatropha cinerea* (Ortega) Müller Argoviensis, *J. vernicosa* Brandegee, *Justicia candicans* (Nees) L. D. Benson, *Priva lappulacea* (L.) Persoon, *Pseudabutilon thurberi* (A. Gray) Fryxell, *Solanum americanum* Miller, *Tithonia thurberi* A. Gray, *Tournefortia volubilis* L., and *Vallesia laciniata* Brandegee.

Etymology. This new taxon honors the late Annetta Carter, an enthusiastic botanist who contributed greatly to our floristic knowledge of Baja California Sur. Carter collected intensively (including paratypes of this new species) in the Sierra de la Giganta, where together with the Sierra Guadalupe are the only known localities for this new taxon. The common name of this species that is used by the ranchers at Rancho Pie de la Cuesta near the type locality is "gobernadora." This common name is normally used, however, for *Larrea tridentata* (Sessé & Moçiño) Coville in most of Mexico including parts of the Baja California peninsula.

Amyris carterae is most similar to *Amyris madrensis* S. Watson, which it superficially resembles in most aspects, but it does not have an upper leaf surface that is glossy or lustrous and the lateral veins are not prominent or obviously raised. The populations of *A. carterae* occur on volcanic substrates in northwestern Mexico, quite disjunct from those of *A. madrensis*, which are restricted to limestone substrates in central and northeastern Mexico and adjacent Texas (Standley, 1923; Wilson, 1911). There is, in addition, a report of *A.* cf. *madrensis* from the state of Jalisco (Lott, 1993), on the Pacific coast. A consistent feature of *Amyris carterae* is the pubescence, always present in the inflorescence and young leaves, the leaves becoming glabrescent, whereas in *A. madrensis* the pubescence may be present or absent.

Paratypes. MEXICO. **Baja California Sur:** Sierra de la Giganta W of Loreto, betw. Arroyo de las Parras & Arroyo de Santo Domingo, 30 Nov. 1950, *Carter & Kellogg 2844* (MEXU); Cañón del Cayuco, E base of Cerro de la Giganta, 7 Oct. 1951, *Carter & Kellogg 3124* (MEXU); betw. La Victoria & Rancho Santa María, W of Notrí, 22 Mar. 1960, *Carter & Ferris 3960* (MEXU); S side of Valle de los Encinos, 8 Nov. 1960, *Carter 4129* (MEXU); cañada S of Rancho de Los Encinos, Valle de los Encinos, 7 June 1963, *Carter & Reese 4558* (MEXU); vicinity of Ojo de Agua del Carrizal, N from Rancho Viejo, 22 Sep. 1965, *Carter 5005* (MEXU); Sierra Guadalupe, near "Los Encinos," SW of Rancho San Sebastián, 29 Nov. 1953, *Carter & Kellogg 3273* (MEXU); Arroyo de los Gueribos, 25 Oct. 1997, *J. J. Pérez Navarro 1054* (HCIB, SD); W of Mulegé at San Borjitas archeological area, 20 Sep. 1997, *Rebman 4251, N. Roberts & N. Villavicencio* (BCMEX, HCIB, MEXU, SD); Canyon Guadalupe, just SW of Rancho Pie de la Cuesta, betw. San José de Magdalena & ex-Mision Guadalupe, 29 Oct. 1997, *Rebman 4674* (MEXU, SD); W of Mulegé, W side of Cumbra de San Pedro betw. ex-Mision Guadalupe & San Juan de las Pilas, 29 Apr. 1998, *Rebman 5241 & J. L. Zuniga* (SD); Guadalupe Canyon, E of the ex-Mision Guadalupe & near Rancho Pie de la Cuesta, 13 Oct. 1999, *Rebman 6038, D. Silverman, M. Wellik, & C. Graf* (BCMEX, SD).

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